

10/29/13 Agenda

- Discuss test & study practices
- Chapter 3 - Section 3.1 - Inequalities & Their Graphs

Homework p. 168-170 (8-38 evens, 44-50 evens, 60)

Warmup:



- Grab a slip of paper
- Put your name on it
- Distribute **$6(-3-2x)$**

$$6(-3-2x)$$
$$-18-12x$$

$$6 \begin{array}{|c|c|} \hline -3 & -2x \\ \hline -18 & -12x \\ \hline \end{array}$$
$$-18-12x$$

$$-12x-18$$

Section 3.1 - Inequalities & Their Graphs

Target 3A & 3B

Goal:

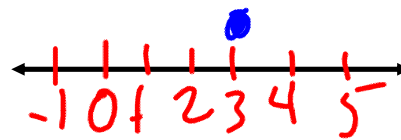
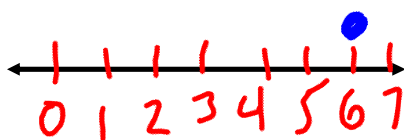
Write and graph inequalities.

Solve:

$$\begin{array}{r} x + 3 = 9 \\ -3 \quad -3 \\ \hline x = 6 \end{array}$$

$$\begin{array}{r} x - 4 = -1 \\ +4 \quad +4 \\ \hline x = 3 \end{array}$$

We just solved these with an algebraic representation. What would they look like on a number line?



Inequalities:

are like an equation, but compare two values that are not equal.

It can be represented as an algebraic inequality or visually on a number line.

Inequality Signs:

Less Than: $<$

Greater Than: $>$

Less than or equal to: \leq

Greater than or equal to: \geq

Section 3.1 - Inequalities & Their Graphs

Target 3A & 3B

Words to
Symbols:

x is less than or equal to 7 $x \leq 7$

6 less than a number k is greater than 13
 $(k-6) > 13$

You try:

p is greater than or equal to 9
 $p \geq 9$

the sum of t and 7 is less than -5
 $(t+7) < -5$

Section 3.1 - Inequalities & Their Graphs

Target 3A & 3B

Graphing:

Type of Circle:

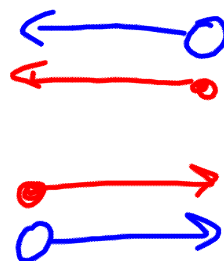
Open: \bigcirc $<$ $>$

Closed: \bullet \leq \geq

Direction:

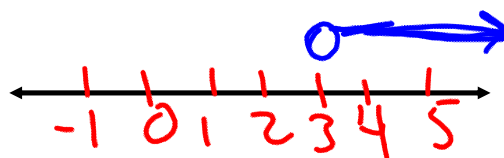
Left

Right

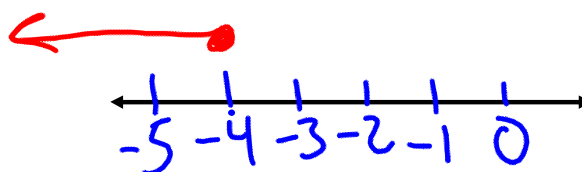


Lets do some:

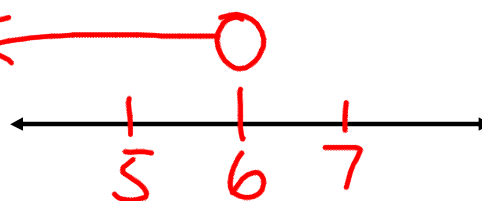
$$x > 3$$



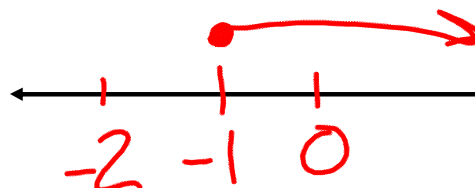
$$y \leq -4$$



$$k < 6$$



$$z \geq -1$$



Section 3.1 - Inequalities & Their Graphs

Target 3A & 3B

Is a value a solution to an inequality?

Example:

Determine whether each number is a solution to the following inequality:

$$5y - 7 > 13$$

$$\begin{aligned} (5 \cdot -4) - 7 \\ -20 - 7 \\ -27 \end{aligned}$$

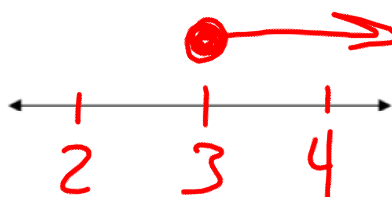
a.) ~~-4~~
NO

b.) 8 ✓
YES

How about this one?

$$3 \leq x$$

$$x \geq 3$$



Try to write
The inequality

all real numbers x less than or equal to 7

$$x \leq 7$$

6 less than a number k is greater than 13

INEQUALITY

$$(k-6) > 13$$

You try:

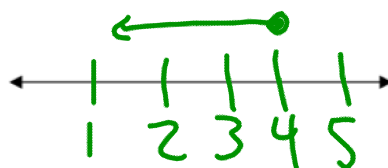
→ all real numbers p greater than or equal to 9

$$p \geq 9$$

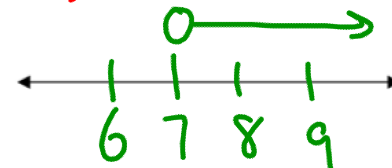
→ The sum of t and 7 is less than -5

$$(t+7) < -5$$

Write the
inequality that
represents the
graph



$$x \leq 4$$



$$x > 7$$

You try:



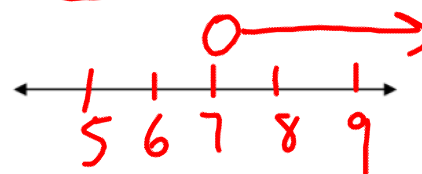
Summary: graphing inequalities is just another representation of the algebraic/verbal statement that we already have. $>$ or $<$ is open, \geq or \leq means closed. Always verbalize it and test points.

All real numbers x
greater than 7

Verbal

$$x > 7$$

Algebraic



Graphic